We Claim:

1. An intravenous catheter comprising an in-line housing, and a material within the housing that removes a targeted compound from the blood by selective adsorption.

2. An indwelling catheter comprising an in-line housing, and a material within the housing that removes a targeted compound from the blood by selective adsorption.

3. An intravenous catheter comprising an in-line exchangeable housing, and a material within the housing that removes a targeted compound from the blood by selective adsorption.

4. An indwelling catheter comprising an in-line exchangeable housing, and a material within the housing that removes a target compound from the blood by selective adsorption.

5. An intravenous catheter comprising a catheter tube having a wall, and a material impregnated in the wall, the material serving to remove a targeted compound from the blood by selective adsorption.

6. An indwelling catheter comprising a catheter tube having a wall, and a material impregnated in the wall, the material serving to remove a targeted compound from the blood by selective adsorption.

7. A catheter according to claim 1 or 2 or 3 or 4 or 5 or 6

wherein the material comprises polymeric particles.

8. A catheter according to claim 7

wherein the polymeric particles include a coating to impart biocompatibilty.

9. A catheter according to claim 7

wherein the polymeric particles comprise particles prepared by polymerization or copolymerization of

a monomer selected from a group consisting of styrene, ethylstyrene, α-methylstyrene, divinylbenzene, di isopropenyl benzene, trivinylbenzene, and alkyl methacrylate.

10. A catheter according to claim 7

wherein the polymeric particles comprise particles formed from crosslinked polystyrene-type resins having a surface modified to minimize activation of blood complement system.

11. A catheter according to claim 7

wherein the polymeric particles comprise particles formed from a porous hydrophobic divinylbenzene copolymer having a surface modified to include surface exposed functional groups selected from the group of polymers of 2-hydroxyethyl methacrylate, N-vinylpyrrolidine, N-vinylcaprolactame and N-acrylamide.

12. A catheter according to claim 7

wherein the polymeric material comprise particles formed by polymerization of aromatic divinyl compounds or their copolymerization with aromatic monovinyl compounds in the presence of porogens or mixtures of porogens with properties close to those of θ-solvents.

13. A catheter according to claim 1 or 2 or 3 or 4 or 5 or 6

wherein the material is characterized by a Biocompatibility Index of not greater than 14.

14. A catheter according to claim 13

wherein the Biocompatibility Index is not greater than 7.

15. A catheter according to claim 1 or 2 or 3 or 4 or 5 or 6

wherein the targeted compound includes cytokines or other species of pro-inflammatory or anti-inflammatory stimulators or mediators.

16. A catheter according to claim 1 or 2 or 3

or 4 or 5 or 6

wherein the targeted compound includes middle molecular weight proteins.

17. A blood treatment assembly comprising

a first unit comprising an element for processing the blood drawn from an individual,

a second unit comprising a material that removes a targeted compound from the blood by selective adsorption, and

coupling means for integrally coupling the first and second units together to form a blood treatment assembly that is supplied to a user as a single, integrated unit.

18. An assembly according to claim 17

wherein the coupling means locates the first unit in an upstream flow direction relative to the second unit.

19. An assembly according to claim 17

wherein the coupling means locates the second unit in an upstream flow direction relative to the first unit.

20. An assembly according to claim 17

wherein the element of the first unit is configured to receive the blood drawn from the individual and to conduct separation of the blood into plasma and at least one cellular blood component.

21. An assembly according to claim 17

wherein the element of the first unit is configured to receive the blood drawn from the individual and to oxygenate the blood.

22. An assembly according to claim 17

wherein the element of the first unit is configured to remove waste from the blood drawn from the individual and convey waste-depleted blood to the second unit.

23. An assembly according to claim 17

wherein the material of the second unit comprises

polymeric particles.

24. An assembly according to claim 23 wherein the polymeric particles include a coating to impart biocompatibilty.

25. An assembly according to claim 23 wherein the polymeric particles comprise particles prepared by polymerization or copolymerization of a monomer selected from a group consisting of styrene, ethylstyrene, α-methylstyrene, divinylbenzene, di isopropenyl benzene, trivinylbenzene, and alkyl methacrylate.

26. An assembly according to claim 23 wherein the polymeric particles comprise particles formed from crosslinked polystyrene-type resins having a surface modified to minimize activation of blood complement system.

27. An assembly according to claim 23 wherein the polymeric particles comprise particles formed from a porous hydrophobic divinylbenzene copolymer having a surface modified to include surface exposed functional groups selected from the group of polymers of 2-hydroxyethyl methacrylate, N-vinylpyrrolidine, N-vinylcaprolactame and N-acrylamide.

28. An assembly according to claim 23 wherein the polymeric material comprise particles formed by polymerization of aromatic divinyl compounds or their copolymerization with aromatic monovinyl compounds in the presence of porogens or mixtures of porogens with properties close to those of θ-solvents.

29. An assembly according to claim 17 wherein the material of the second unit is characterized by a Biocompatibility Index of not greater than 14.

30. An assembly according to claim 29 wherein the Biocompatibility Index is not greater

than 7.

31. An assembly according to claim 17

wherein the targeted compound includes cytokines or other species of pro-inflammatory or anti-inflammatory stimulators or mediators .

32. An assembly according to claim 17

wherein the targeted compound includes a middle molecular weight protein.

33. A blood treatment assembly comprising

a first unit comprising a first material that removes a first targeted compound from the blood,

a second unit comprising a second material, different than the first material, that removes a second targeted compound, different than the first targeted compound, from the blood, and

coupling means for coupling the first and second units together in a series flow relationship.

34. An assembly according to claim 33

wherein the first material comprises an adsorption medium that removes the first targeted compound by selective adsorption.

35. An assembly according to claim 34

wherein the second material comprises an adsorption medium that removes the second targeted compound by selective adsorption.

36. An assembly according to claim 34

wherein the second material comprises an ionic exchange medium that removes the second targeted compound.

37. An assembly according to claim 33

wherein the coupling means locates the first unit in an upstream flow direction relative to the second unit.

38. An assembly according to claim 33

wherein the coupling means locates the second unit in an upstream flow direction relative to the first unit.

39. An assembly according to claim 33 wherein one of the first and second targeted compounds includes cytokines or other species of pro-inflammatory or anti-inflammatory stimulators or mediators.

40. An assembly according to claim 33 wherein one of the first and second targeted compounds includes a middle molecular weight protein.

41. An assembly according to claim 33 wherein one of the first and second targeted compounds includes an endotoxin.

42. An assembly according to claim 33 wherein the first targeted compound includes cytokines or other species of pro-inflammatory or anti-inflammatory stimulators or mediators , and wherein the second targeted compound includes another compound released into the blood as a result of trauma or injury.

43. An assembly according to claim 42 wherein the other compound includes a protein.

44. An assembly according to claim 42 wherein the other compound includes a toxin.

45. An assembly according to claim 42 wherein the other compound includes a chemical moiety.